

We Claim:

1. A fuel cell installation, comprising:

at least one fuel cell stack including individual fuel cell units;

said individual fuel cell units being electrically connected in series and being configured as separate subsystems; and

at least two of said separate subsystems being not identical and having at least one of separate voltage controls and separate power electronics.

2. The fuel cell installation according to claim 1, wherein at least two of said subsystems are electrically connected in parallel.

3. The fuel cell installation according to claim 1, wherein at least one of said subsystems includes at least one unit selected from the group consisting of a high-temperature polymer electrolyte membrane fuel cell unit, a strip cell unit and a polymer electrolyte membrane fuel cell unit.

4. The fuel cell installation according to claim 1, wherein said at least one fuel cell stack includes at least one element selected from the group consisting of a starter system and a low-voltage unit.

5. The fuel cell installation according to claim 4, wherein said starter system includes at least one polymer electrolyte membrane fuel cell unit.

6. The fuel cell installation according to claim 1, wherein at least two of said subsystems have respective cooling circuits assigned thereto, said cooling circuits are configured to be connectable in at least one of a series connection and a parallel connection.

7. The fuel cell installation according to claim 1, including an energy storage device operatively connected to said at least one fuel cell stack.

8. The fuel cell installation according to claim 7, wherein said energy storage device is a battery.

9. A method for operating a fuel cell installation, the method which comprises:

providing at least one fuel cell stack including individual fuel cell units, the individual fuel cell units being electrically connected in series and being configured as separate subsystems, at least two of the separate subsystems being not identical and having at least one of separate voltage controls and separate power electronics; and

at least one of separately activating and separately operating the separate subsystems.

10. The method according to claim 9, which comprises operating the subsystems in respective continuous and discontinuous operation modes.

11. The method according to claim 9, which comprises starting at least one starter system at a beginning of a cold start of the at least one fuel cell stack.

12. The method according to claim 9, which comprises providing a modular media preparation for ensuring an optimized utilization of a fuel gas.

13. The method according to claim 9, which comprises operating, during an inoperative phase, at least one

subsystem selected from the group consisting of a low-voltage subsystem and a low-current subsystem under maintenance load.

14. The method according to claim 9, which comprises connecting respective cooling circuits of at least two of the fuel cell units in series during at least one operating phase selected from the group consisting of a starting phase, an inoperative phase under maintenance load and a low load operating phase.

15. The method according to claim 9, which comprises:

drying the at least one fuel cell stack during an inoperative phase by at least one of heating the at least one fuel cell stack and blowing the at least one fuel cell stack dry; and

protecting the at least one fuel cell stack from atmospheric humidity by closing one of valves and flaps.

16. The method according to claim 9, which comprises setting an efficiency of a subsystem toward one of an increased voltage and an increased thermal output by setting a cell voltage.